

### 3.3.8.4 Calcareous Fen (Southern)

#### 3.3.8.4.1 Community Overview

Calcareous fens occur mostly in southern Wisconsin, on sites that are fed by carbonate-enriched groundwater. Most fens are small, covering no more than a few acres, and are often associated and can intergrade with more abundant and widespread wetland communities such as southern sedge meadow, wet prairie, shrub-carr, emergent marsh, and southern tamarack swamp. An accumulation of peat can raise the fen surface to a height of several meters above the adjoining lands.

The diverse fen flora is distinctive, containing many calciphiles of restricted distribution. Common or representative plants include sedges, marsh fern, shrubby cinquefoil, shrubby St. John's-wort, Ohio goldenrod, grass-of-parnassus, twig-rush, brook lobelia, boneset, swamp thistle, and asters. Many fens have a significant number of prairie or sedge meadow components, and some contain plants often associated with bogs, such as tamarack, bog birch and pitcher plant.

Fens occur in several landscape settings, including the bases of morainal slopes, on sloping deposits of glacial outwash, in the headwaters regions of spring runs and small streams, and on the shores of alkaline drainage lakes.

#### 3.3.8.4.2 Vertebrate Species of Greatest Conservation Need Associated with Calcareous Fen (Southern)

Ten vertebrate Species of Greatest Conservation Need were identified as moderately or significantly associated with calcareous fen (southern) (Table 3-178).

**Table 3-178. Vertebrate Species of Greatest Conservation Need that are (or historically were) moderately or significantly associated with calcareous fen (southern) communities.**

<b><i>Species Significantly Associated with Calcareous Fen (Southern)</i></b>
<b>Herptiles</b>
Butler's Garter Snake
Eastern Massasauga Rattlesnake
<b><i>Species Moderately Associated with Calcareous Fen (Southern)</i></b>
<b>Birds</b>
American Woodcock
Willow Flycatcher
Rusty Blackbird
<b>Herptiles</b>
Pickerel Frog
<b>Mammals</b>
Northern Long-eared Bat
Silver-haired Bat
Eastern Red Bat
Hoary Bat

In order to provide a framework for decision-makers to set priorities for conservation actions, the species identified in Table 3-178 were subject to further analysis. The additional analysis identified the best opportunities, by Ecological Landscape, for protection, restoration, and/or management of both


calcareous fen (southern) and associated vertebrate Species of Greatest Conservation Need. The steps of this analysis were:


- Each species was examined relative to its probability of occurrence in each of the 16 Ecological Landscapes in Wisconsin. This information was then cross-referenced with the opportunity for protection, restoration, and/or management of calcareous fen (southern) in each of the Ecological Landscapes (Tables 3-179 and 3-180).
- Using the analysis described above, a species was further selected if it had both a significant association with calcareous fen (southern) and a high probability of occurring in an Ecological Landscape(s) that represents a major opportunity for protection, restoration and/or management of calcareous fen (southern). These species are shown in Figure 3-43.


**Table 3-179. Vertebrate Species of Greatest Conservation Need that are (or historically were) significantly associated with calcareous fen (southern) communities and their association with Ecological Landscapes that support calcareous fen (southern).**

Calcareous Fen (Southern)	Herptiles (2)*	
	Butler's Garter Snake	Eastern Massasauga Rattlesnake
Ecological Landscape grouped by opportunity for management, protection, and/or restoration of this community type		
<b>MAJOR</b>		
Central Sand Hills		
Southeast Glacial Plains		
<b>IMPORTANT</b>		
Southern Lake Michigan Coastal		
<b>PRESENT (MINOR)</b>		
Central Sand Plains		
Western Coulee and Ridges		

**Color Key**

 = HIGH probability the species occurs in this Ecological Landscape

 = MODERATE probability the species occurs in this Ecological Landscape


 = LOW or NO probability the species occurs in this Ecological Landscape


\* The number shown in parentheses is the number of Species of Greatest Conservation Need from a particular taxa group that are included in the table. Taxa groups that are not shown did not have any Species of Greatest Conservation Need that met the criteria necessary for inclusion in this table.


**Table 3-180. Vertebrate Species of Greatest Conservation Need that are (or historically were) *moderately* associated with calcareous fen (southern) communities and their association with Ecological Landscapes that support calcareous fen (southern).**

Calcareous Fen (Southern)	Birds (3)*			Herptiles (1)	Mammals (4)			
	American Woodcock	Willow Flycatcher	Rusty Blackbird	Pickereel Frog	Northern Long-eared Bat	Silver-haired Bat	Eastern Red Bat	Hoary Bat
<b>MAJOR</b>								
Central Sand Hills								
Southeast Glacial Plains								
<b>IMPORTANT</b>								
Southern Lake Michigan Coastal								
<b>PRESENT (MINOR)</b>								
Central Sand Plains								
Western Coulee and Ridges								

**Color Key**

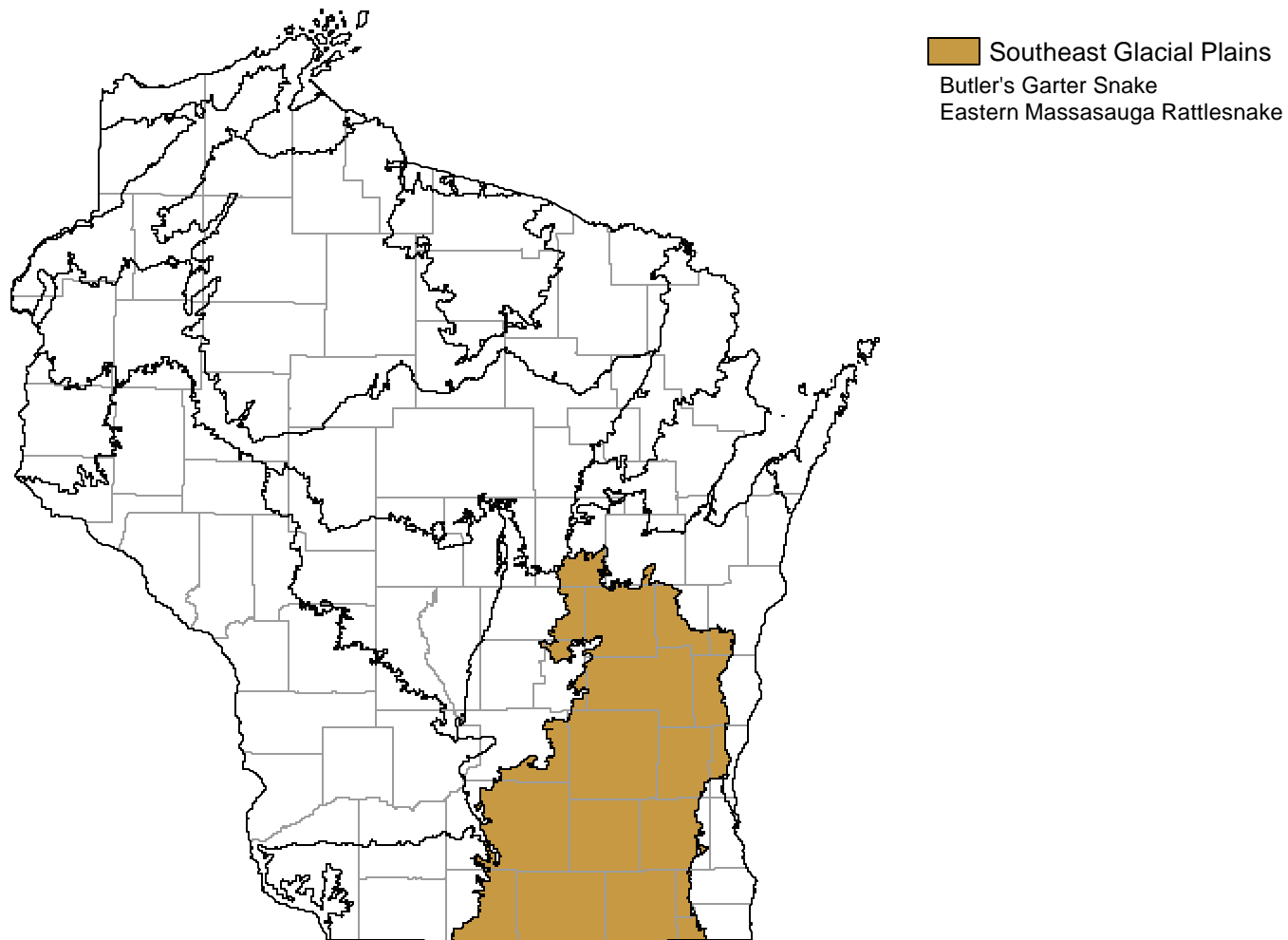
 = HIGH probability the species occurs in this Ecological Landscape

 = MODERATE probability the species occurs in this Ecological Landscape

 = LOW or NO probability the species occurs in this Ecological Landscape

\* The number shown in parentheses is the number of Species of Greatest Conservation Need from a particular taxa group that are included in the table. Taxa groups that are not shown did not have any Species of Greatest Conservation Need that met the criteria necessary for inclusion in this table.

**Figure 3-43. Vertebrate Species of Greatest Conservation Need that have both a significant association with calcareous fen (southern) and a high probability of occurring in an Ecological Landscape(s) that represents a major opportunity for protection, restoration and/or management of calcareous fen (southern).**



### **3.3.8.4.3 Threats and Priority Conservation Actions for Calcareous Fen (Southern)**

#### **3.3.8.4.3.1 Statewide Overview of Threats and Priority Conservation Actions for Calcareous Fen (Southern)**

The following list of threats and priority conservation actions were identified for calcareous fen (southern) in Wisconsin. The threats and priority conservation actions described below apply to all of the Ecological Landscapes in Section 3.3.8.4.3.2 unless otherwise indicated.

##### Threats and Issues

- The primary threat to calcareous fens is disruption of hydrology.
- Ditching, diking, dredging, tiling, pumping, and quarrying can all affect the quantity and quality of groundwater needed by fens to persist.
- Water quality may be affected by septic system leakage, infiltration of dissolved road salt, agricultural runoff, and contaminant plumes in groundwater.
- Residential development that is accompanied by the withdrawal of waters from local aquifers can reduce the amount of water available to maintain the fens.
- Invasive species can be serious threats to calcareous fens, with glossy buckthorn, narrow-leaved cattail, giant reed, and purple loosestrife among the potential offenders.
- Grazing, vehicular traffic, and overuse by hikers or other recreationists can physically damage the surface and destroy sensitive vegetation.
- Historically, fire played a key role in maintaining many of the fens in southern Wisconsin. The lack of fire in the present landscape has contributed to the encroachment of woody species on open fen habitat, with the consequent suppression or loss of some of the more light-demanding herbs.
- When considering the introduction of prescribed fire into fen habitat, it should be noted that the fen community can support rare animals, such as the swamp metalmark butterfly, an invertebrate Species of Greatest Conservation Need, that are sensitive to fire in all stages of their life cycles. Burn plans need to be designed with the needs of such species in mind.

##### Priority Conservation Actions

- Preservation of hydrologic function sometimes requires the management of surrounding lands, as well as groundwater resources.
- Develop partnerships with private conservation organizations, agricultural interests, municipalities, and other government agencies to manage and protect surrounding lands.
- Protection should be encouraged, especially on privately owned sites, by providing landowner incentives.
- Where possible, manage in complexes of marsh, wet meadow, low prairie, shrub-carr, and tamarack swamp.
- Continue to work on the protection of important fens through the variety of means available.
- Develop effective biocontrols for pernicious invasive plants such as glossy buckthorn.
- Continue research on the development of management techniques that maintain the community and protect its most sensitive elements.

#### **3.3.8.4.3.2 Additional Considerations for Calcareous Fen (Southern) by Ecological Landscape**

Special considerations have been identified for those Ecological Landscapes where major or important opportunities for protection, restoration, and/or management of calcareous fen (southern) exist. Those considerations are described below and are in addition to the statewide threats and priority conservation actions for calcareous fen (southern) found in Section 3.3.8.4.3.1.

Additional Considerations for Calcareous Fen (Southern) in Ecological Landscapes with **Major** Opportunities for Protection, Restoration, and/or Management

*Central Sand Hills*

The wetlands bordering some of the spring-fed streams in this Ecological Landscape include a number of important fens, some of them on private lands.

*Southeast Glacial Plains*

Several exceptional calcareous fens have been identified in and around the kettle interlobate moraine, toward the southeastern edge of the Ecological Landscape. The most notable area is the South Unit of the Kettle Moraine State Forest. The upper reaches of the Mukwonago River also harbor a concentration of fens.

Additional Considerations for Calcareous Fen (Southern) in Ecological Landscapes with **Important** Opportunities for Protection, Restoration, and/or Management

*Southern Lake Michigan Coastal*

In this Ecological Landscape there are some unusual and highly distinctive variants of this community. Wisconsin's sole example of Lakeplain prairie contains fen-like areas within the complex mosaic of natural communities now protected at Chiwaukee Prairie State Natural Area (Kenosha County). Clay bluffs bordering Lake Michigan in southern Milwaukee County have highly localized patches from which groundwater is discharged. The vegetation in these seepage areas strongly resembles that of the fens, with a number of calciphilic plants present.